

1 CSUF-12
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5 **METHOD AND APPARATUS FOR GENERATING PROPULSIVE
6 FORCES WITHOUT THE EJECTION OF PROPELLANT**
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9 **ABSTRACT OF THE INVENTION**
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11 Mach's principle and local Lorentz-invariance together yield the prediction of transient
12 rest mass fluctuations in accelerated objects. These restmass fluctuations, in both
13 principle and practice, can be quite large and, in principle at least, negative. They
14 suggest that exotic space time transport devices may be feasible, the least exotic being
15 "impulse engines", devices that can produce accelerations without ejecting any material
16 exhaust. Such "impulse engines" rely on inducing transient mass fluctuations in
17 conventional electrical circuit components and combining them with a mechanically
18 coupled pulsed thrust to produce propulsive forces without the ejection of any
19 propellant. The invention comprises a method of producing propellant-less thrust by
20 using force transducers (piezoelectric devices or their magnetic equivalents) attached
21 to resonant mechanical structures. The force transducers are driven by two phase-
22 locked voltage waveforms so that the transient mass fluctuation and mechanical
23 excursion needed to produce a stationary thrust are both produced in the transducer
24 itself.
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